

LEWES BPW

Howard Seymour Water Reclamation Plant

Operation and Maintenance Report



September 2021

Executive Summary

	Green	Yellow	Red
Headworks			
Oxidation Ditch			
Filters			
Generator			
Weather			
Solids Handling			
NPDES Parameters			
Pump Stations			
Personnel			
Safety			
Compliance			

(New information in bold font)

- Headworks- Equalization Pump control panel replacement project moving forward with Keystone and Hills. Keystone to replace the RTU. Inframark continues to utilize the dewatering roll off container to capture screening while lipactor is offline. **A malfunctioning main bearing to the 5mm Band-screen was replaced on 9-15-2021. The EQ tank was cleaned on 9-21-2021. The 5mm Band-screen was put back online on 9-24-2021.**
- Filters- UF Train 4 de-ragged and returned to service 3-8-2021. UF Train 1 de-ragged and returned to service 4-19-2021. De-ragging of UF Train 2 complete 5-28-2021. UF Train 3 de-ragged and returned to service 7-21-2021. UF Train 4 re-gagging started the week of 10-11-2021.
- Pump Stations- **A proposal to replace the Pump Station 8 Generator Transfer Switch for \$3,690 from Curtis Power Solutions was accepted. A rental emergency generator is online at Pump Station 4 while plans for a permanent solution are being evaluated. The VFDs to Pump #1 at PS4 and Pump #2 at PS8 were replaced on 10-19-2021. The diesel bypass pump is still hooked up at PS4. A back up diesel bypass pump is on standby at the WWTP. A representative from Hills Electric Motor was onsite to generate proposals for PS3 and PS8 pump rehabilitation or replacement.**
- Personnel- Maintenance Tech, Michael Mazzetti started 10-13-2021. David Weed, Operator III, started on a part-time basis on 10-18-2021. A new operator will be starting on 10-25-2021. David Weed has a DE Class 4 license. The new operator starting the 25th has a PA license and is applying for reciprocity. As of the 25th, we will have 5 full-time employees and two part-time employees.

Critical Issues

- Covid- Inframark is following CDC recommendations to ensure uninterrupted service to the BPW and the Lewes community.
- Condition of headworks screening equipment is in critical need of repair or replacement to decrease excessive ragging of UF membranes.

- Spare pumps are not in stock for PS11, PS15, PS16, PS17B, PS18 and PS32. Inframark does not have maintenance records for existing pumps. Based on recommendations made in Severn Trent's 2016 Annual Report, most pumps were in need of replacement within five years. We have found no evidence that these pumps had been replaced during the past five years. Many pump station control panels are in need of repair or replacement including PS1, PS2, PS5, PS6, PS7, PS9, PS10, PS11, PS12, PS13, PS14, PS15, PS16, PS17, PS18, PS33, PS74 and PS83.

Projects

Project	Status	Priority Level	Approval	Est. Complete Date
Headworks Replacement	In design	High	BPW Project	QTR2 2022
Replace EQ Pump Drives and Control Panel	Keystone is proceeding with replacement of the RTU. A quote from Hills for replacement of the VFDs is pending.	High	BPW Project	QTR4 2021
Replace Generator and ATS at PS4	GMB and Keystone are evaluating size based on future needs	High	BPW Project	QTR4 2021
Replace ATS at PS8	Accepted Proposal	High	Received	QTR4 2021
Rehab PS3 & PS8	Inframark to solicit pricing	High	Needed	QTR4 2021
Clean Membranes	All trains cleaned one time 2021	High	NA	ongoing

Operations

NPDES Permit Compliance

- Please review the following tables that summarize NPDES reporting criteria for September 2021. No violations will be reported for September. The DMR will be forwarded upon completion.
- The average daily influent flow for September was 0.644 MGD with a maximum daily flow of 0.841 MGD. Precipitation totaled 2.64 inches for September with a maximum daily total of 1.1 inches.

	Max	Sum
Precipitation (inches)	1.07	2.64

Influent	Limit	Average	Min	Max	Vio
Flow (MGD)		0.644	0.490	0.841	
BOD (mg/L)		203	203	203	
BOD Load (lbs)		1,187	1,187	1,187	
TSS (mg/L)		96	96	96	
TSS Load (lbs)		561	561	561	
Effluent					
Flow (MGD)		0.680	0.467	0.863	N
Dissolved Oxygen (mg/L)		7.66	6.42	9.01	N
pH (SU)	Min 6/ Max 9	7.45	7.32	7.58	N
Enterococcus (col/100ml)	Avg 10/ Max 104	<1	<1.0	1.0	N

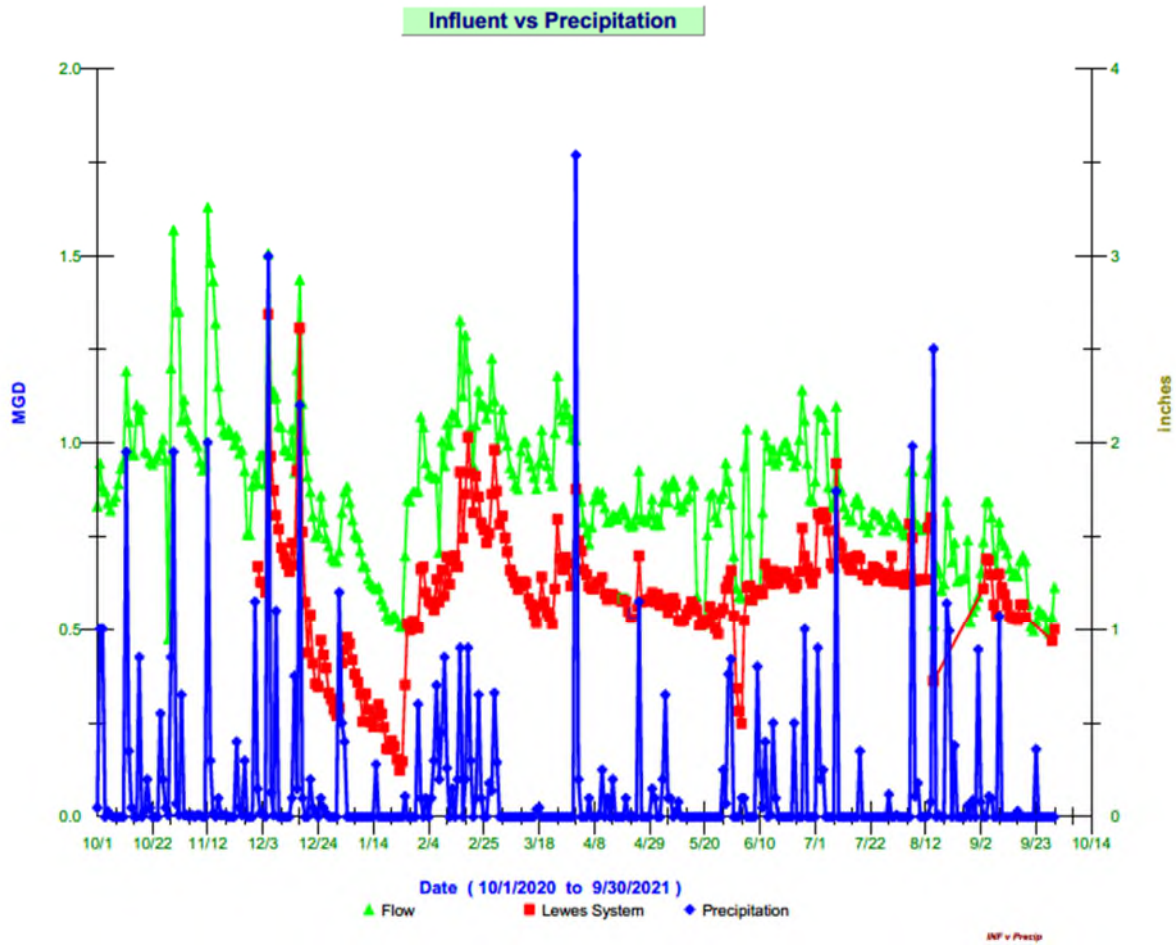
BOD (mg/L)	Avg 15/ Max 23	<2.4	<2.4	<2.4	N
BOD Load (lbs)	Avg 188/ Max 288	<13	<11	<16	N
BOD Removal (%)		98.8	98.8	98.8	
TSS (mg/L)	Avg 15/ Max 23	<0.6	<0.5	<1.0	N
TSS Load (lbs)	Avg 188/ Max 288	<3	<2	<6	N
TSS Removal (%)		99	99	99	
Total Nitrogen (mg/L)	Avg 8	3.87	3.87	3.87	N
Total Nitrogen Load (lbs)	Avg 100	20.52	20.52	20.52	N
Total Phosphorous (mg/L)	Avg 2	0.05	0.05	0.05	N
Total Phosphorous Load (lbs)	Avg 25	0.32	0.32	0.32	N
Process					
Bio #1 MLSS (mg/L)		12,775	4,000	21,700	
Bio #2 MLSS (mg/L)		10,925	800	18,800	
Train 1 MLSS (mg/L)		8,875	6,800	13,200	
Train 2 MLSS (mg/L)		9,725	8,600	10,400	
Train 3 MLSS (mg/L)		10,350	7,700	12,600	
Train 4 MLSS (mg/L)		7,225	3,100	9,900	
TSS Digester 1 (mg/L)		17,150	7,000	22,800	
TSS Digester 2 (mg/L)		17,400	9,300	22,600	

Sludge Operations and Disposal

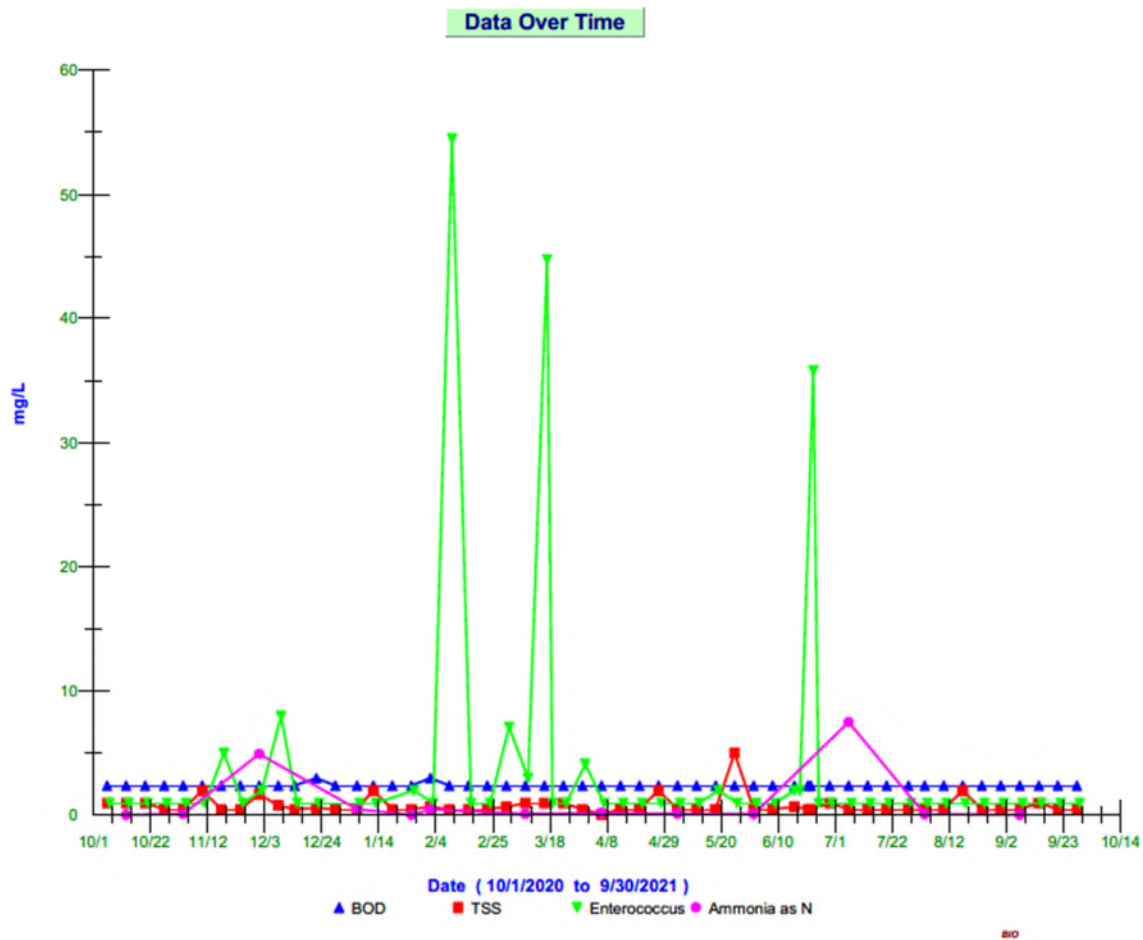
Liquid Hauled	0	Gallons	DELCORA
Cake Hauled	49.3	Wet Tons	Sussex County

Trends

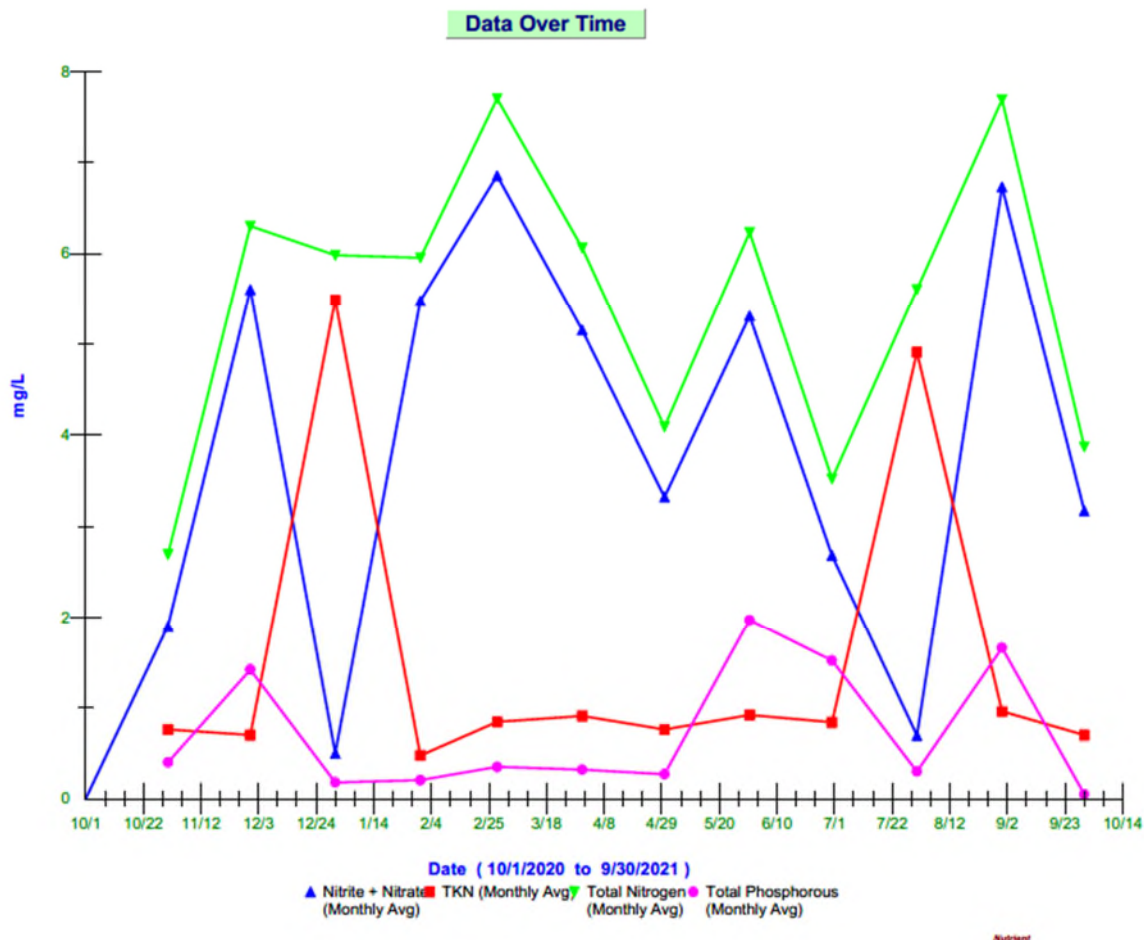
Influent vs Precipitation Trend Previous 12 Months



Effluent Biological Contaminants Trend Previous 12 Months



Effluent Nutrient Trends Previous 12 Months



Maintenance, Repair and Activities

- 9-03-2021 Dauphin Electric onsite to replace #1 EQ Tank Mixer disconnect.
Sent Blower C to Aerzen for repair.
Pulled Pre-Anoxic Mixer to send out for repair.
- 9-07-2021 Installed UPS inline with pump controller at PS4.
- 9-09-2021 Dauphin Electric onsite to troubleshoot motor fault UF Train Blower B. Motor was disconnected. Replaced motor overloads to grit removal paddle.
- 9-13-2021 KZ onsite to replace a UF Train Air Compressor.
- 9-15-2021 KZ onsite to replace failed main bearing to 5 mm Band-Screen.
- 9-16-2021 Installed motor to Bio Blower 3.
- 9-17-2021 Dauphin Electric onsite to troubleshoot Grit Pump and EQ Aerator.
- 9-21-2021 Chesapeake Environmental Services onsite to pump down and clean the EQ Tank.
- 9-22-2021 Freemire and Ass onsite to replace grit system air compressor.
- 9-24-2021 Moved working Maci Pump from 2 mm Band-Screen to 5 mm Band-Screen.
Installed larger 2-inch submersible pump into 2 mm screenings trough and

connected to a discharge pipe running to the 5 mm Maci Pump. The 5 mm Maci Pump now discharging into the dewatering dumpster.
 9-30-2021 Aerzen onsite to replace UF Train Blower C.

Callouts

9-09-2021 UF Trains High Level
 9-11-2021 Screenings Dumpster High Level
 9-13-2021 UF Train Low Air Pressure
 9-14-2021 UF Train Low Air Pressure
 9-14-2021 UF Train Blower C Fail
 9-14-2021 PS5 High Level
 9-15-2021 PS5 High Level
 9-22-2021 PS4 High Level
 9-25-2021 EQ Pump High Temp
 9-25-2021 PS8 High Level
 9-30-2021 5 mm Maci Pump Overload

Maintenance Budget

Monthly Budget	September Expenses 2021	Contract Year to Date	Remaining Balance
\$7,500	\$ 22,766.04	\$ 176,421	\$ (86,421)

Maintenance Expenditures

Vendor	Description	Expense
K & Z Mechanical, Inc.	Disconnect and reconnect process blower 87-A. Troubleshoot Foam pump. Repair Digester Building garage door opener. Connect #2 EQ Tank Mixer. Trouble shoot #1 EQ Tank Mixer.	1,330.00
ADVANCE AUTO PARTS	Oil for air compressor	13.47
AMAZON.COM	Oil for preventative maintenance	102.42
FISHER AUTO PARTS	SAE 30 oil for Gorman Rupp Preventive Maintenance	168.70
HARBOR FREIGHT TOOLS	Safety wire for equipment	13.48
HARBOR FREIGHT TOOLS	Air compressor spare for temporary use in Zenon Air System	194.95
K & Z Mechanical, Inc.	Replace #1 EQ Tank Mixer disconnect.	2,352.00
K & Z Mechanical, Inc.	Install Quincey Air Compressor	2,080.00
K & Z Mechanical, Inc.	Generator Hookup	805.00
K & Z Mechanical, Inc.	Replace bearing to 5 mm screener	3,167.00
TRACTOR SUPPLY	Hitch to move equipment with vehicle	169.98
TRACTOR SUPPLY	Fuel Transfer Tank and Pump for bypass pump	446.97

United Rentals North America Inc	Rental Bypass Pump August	4,055.43
United Rentals North America Inc	Rental Generator September	1,377.00
United Rentals North America Inc	Rental Generator August	1,377.00
United Rentals North America Inc	Rental Bypass Pump September	4,055.43

Health & Safety

Inframark Training and Presentations

- Defensive Driving
- Civility in the Workplace

Personnel

Name	Title	DE Certification
Jerry Shupe Jr.	Regional VP	NA
Michael Wolgemuth	Regional Manager	DE Class IV WW
Richard Plack	Project Manager	DE Class IV WW
Paul Smith	Operator II	DE Class II WW
Kurt Brittingham	Operator II	NA
Michael Mazzetti	Maintenance Technician III	NA
David Weed	PT Operator III	DE Class IV WW
Loran George	PT Operator III	DE Class IV WW
Tom Callahan	Regional Safety Advisor	NA

Attachments

- September County Flow Totals
- August DMR
- Zenon InSight Report- 10-6-2021
- Pump Station Flow vs Rain Graphs